

ABSTRACT

[0078] A perfusion-chamber structure includes a chamber plate with an extracellular compartment, a partition plate with an electrode aperture, and a foundation plate with an intracellular compartment. A gap between the chamber plate and the partition plate produces a channel for applying suction that draws extracellular solution from the extracellular compartment and facilitates the movement and positioning of a test cell over the electrode aperture. The positioning procedure for the test cell is accompanied by a slight positive pressure applied to the intracellular solution in the intracellular compartment of the perfusion chamber to cause upward fluid flow through the electrode aperture. When the cell is positioned over the electrode aperture, the positive pressure on the intracellular fluid is reversed to suction and the cell is seated thereby to form the seal.